III. Remarks

Reexamination and reconsideration of this application is hereby requested. Claims 1, 4, and 5 are pending in the application. Claims 7 and 8 have been withdrawn from consideration. Claim 1 has been amended. Claim 2, 3 and 6 have previously been cancelled.

Rejections Under 35 U.S.C. § 112

In the Office Action, the examiner rejected claims 1, 4 and 5 under § 112, first paragraph, as failing to comply with the written description requirement and with the enablement requirement. Claims 1, 4 and 5 were also rejected under § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses these rejections.

In making the above rejections, the examiner has focused attention on the amendments to Figures 3, 4 and 5 as well as the amendments to paragraphs 0026, 0027 and 0028. With regard to the prior proposed amendments to Figures 3, 4 and 5, the examiner has deemed the proposed drawing changes as constituting "new matter" and has denied entry of those changes on that basis. With regard to paragraphs 0026, 0027 and 0028, the examiner's contentions has been carefully studied and in response, further amendments are being made to these paragraphs. Additionally, presented below are comments as to the interpretation of the original disclosure and the amended paragraphs.

One objection of the examiner was the changing in some instances of the term "collector" to "collector unit". A review of paragraphs 0026, 0027 and 0028 reveals that

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this change was done one time in paragraph 0026. While it is believed that the change was done where it was readily apparent by the context of the application warranted change, Applicants are herein amending paragraph 0026 to revert to the original language in that instance.

The examiner also focuses a lot of attention on the last sentence of paragraph 0026, stating that this sentence is awkwardly worded. The undersigned acknowledges that the last sentence of paragraph 0026, as originally presented, was grammatically difficult. However, it is believed that once this sentence has been grammatically parsed, it will be apparent to the examiner that the current form of this sentence is consistent in meaning with the original sentence. The original text of the last sentence of paragraph 0026 recited as follows:

> The term collector, or collector region, respectively, is, with the corresponding function in reversed sense, also meant as distributor, or distributor region, respectively, without special reference.

One clause of this sentence on which the examiner relies in helping with the proposed interpretation, is the dependent clause that states "with the corresponding function in reversed sense". Another dependent clause in this sentence is "without special reference". Since these two clauses are dependent clauses, the original sentence remains a complete sentence when these clauses are omitted therefrom. Omitting these dependent clauses, the original sentence reads as follows:

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The term collector, or collector region, respectively, is also meant as distributor, or distributor region."

Parsed down to the above, it is apparent that the construction illustrated in Figure 2 can operate as either the distributor half or the collector half of the heat exchanger 3. In other words, these two halves have the same or mirror constructions. This interpretation is supported by paragraph 0027, which refers to the distributor region and the collector region by the same reference numeral, reference numeral 9. Thus, the structure of the sentence implies that where the term "collector" is being used, it could be substituted with "distributor" and similarly for the "collector region" in the "distributor region". The dependent clause "with the corresponding function in reverse sense" does not alter this underlying interpretation of the base sentence. The examiner appears to be relying on the term "reversed sense" to mean as an alternative embodiment. However, the term "reversed sense" is used so as to modify the corresponding function. Thus, the proper interpretation of the dependent clause is that the corresponding function of the "distributor" is reversed from that of the "collector"; one distributes and one collects. Obviously, this is the normal, ordinary operation and function of distributors and collectors in heat exchangers.

Regarding the dependent clause "without special reference", it is submitted that this dependent clause merely means that a separate drawing is provided for the other half of the heat exchanger 3, because the other half is of the same/mirror construction is not in the figure.

The examiner also contends, one page 3, lines 7 and 8 of the Office Action, that the amendment of paragraph 0026 added the words "distributor" and "distributor region"

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to the last sentence of paragraph 0026. It is respectfully noted that the words "distributor" and "distributor region" existed in the original sentence and were not added thereto.

In summary, the present form of the last sentence of paragraph 0026 corresponds in structure and interpretation to the originally presented sentence. In the sentences presently amended form, the dependent clause "with the corresponding function in reverse sense" has merely been moved from its original position to a position following recitation of "distributor or distributor region". This is proper because the dependent clause relates to the function of the distributor or distributor region. The other change in the current form of the sentence is that the dependent clause "without special reference" has been replaced with a separate sentence generally stating that an additional figure showing the similarly constructed other half of the heat exchanger is not required.

In view of the above grammatical parsing of the original text of the last sentence of paragraph 0026, it is respectfully submitted that the meaning of this sentence has not been changed and that new matter has not been introduced into the application as a result.

Paragraph 0027 has been amended to readopt a significant portion of the language presented in the original version of this paragraph. The original first sentence of paragraph 27 recited as follows:

> In the example shown, the coolant and similarly the refrigerant of the coolant circuit 1 are distributed in the coolant collector region or coolant distributor region 9 of the

> distributor unit pass the coolant tube 6 dissipating heat to the cellular blocks 11 in thermal contact with the coolant tube 6 and the air to be heated 5.

The current version of this first sentence of paragraph 0027 differs from the original as follows:

> In the example shown, the coolant, and similarly the refrigerant, of the coolant circuit 1 [[are]] is distributed in ~~the coolant collector region or~~ coolant distributor region 9 of the distributor unit into the coolant tube 6 ~~pass~~ passes through the coolant tube 6 thereby dissipating heat to the cellular blocks 11 in thermal contact with the coolant tube 6 and the air to be heated 5.

In this sentence, which is referring to Figure 2, the coolant distributor region is identified as being region 9. This sentence further specifically spells out that the coolant flows from the coolant distributor region 9, into the coolant tube 6. The second sentence of this paragraph, in its original form, follows the flow of coolant and recites that the coolant (identified by the pronoun "it") is redirected 180 degrees in the redirection region 14 and flows back to the coolant collector region 9. Therefore the coolant is collected and passed on. Thus, from paragraph 0027 and in particular the first sentence of this paragraph, it is seen that the region 9 identified in the drawings is operating as either the "coolant distributor region 9" or the "coolant collector region 9", depending on if the region 9 is part of distributing or collecting half of the construction.

The above construction, as set out in paragraphs 0026 and 0027 is the basic construction of a heat exchanger with an integrated gas cooler/condenser according to

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the present invention. It is noted that paragraphs 0026 and 0027 are specifically referring to Figure 2. This is particularly important to note when interpreting the last sentence of paragraph 0026. It will be recalled that the original sentence included a dependent clause that provided, "without special reference". This language, taken in conjunction with paragraph 0027, clearly means that the construction seen in Figure 2 is the same construction for both the distributor side and the collector side of the heat exchanger. In other words, the heat exchanger of Figure 2 would involve two constructions seen similar to Figure 2, one stacked upon a substantially identical structure. The illustrated structure is therefore one half of a mirrored construction. This is particularly evident because of the construction of the redirection regions 12 and 14.

The illustrated construction of the helix-shaped redirection region 12 is one where the flat tube is twisted 90° thereby allowing it to be bent 180°, and then additionally twisted another 90°. This produces the shape identified by reference numeral 12 and seen in Figure 2. Accordingly, the tube 7 is bent at 12 back into the page and the corresponding tube 7 of the other side of the heat exchanger 3 would be layered and located immediately beneath (or in the page) of the illustrated tube 7.

Similarly, redirection region 14 is illustrated in Figure 2. Notably, if one tube 6 illustrated in Figure 2 was to be connected to another of the tubes 6 illustrated in Figure 2, additional structure for the redirecting unit 14 would have to be seen extending between corresponding pairs of tubes 6. Since no additional structure is illustrated for the redirection region 14, since the refrigerant redirection region 12 extends into the page, it is submitted that the redirection regions 14 similarly must extend into the page

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and that the corresponding coolant tube 6 of the heat exchanger 3 would be similarly located immediately beneath the coolant tube 6 (located in the page).

Because the distribution and collection sides of the heat exchanger 3 are mirror images of each other and Figure 2 could represent either the distribution side or the collection side, identical numbers were used in the present application. In hindsight, additional numerals such as prime designations of the same numerals, could have been utilized to clarify this stacked illustration of Figure 2. However, it is believed that the parsed construction of the last sentence of paragraph 0026 taken in conjunction with the specific recitation of a coolant distribution region 9 in paragraph 0027, clearly indicates this construction.

Knowing the construction of Figure 2 an understanding of the constructions in the remaining figure becomes readily apparent. The constructions illustrated in Figures 3, 4 and 5 are schematic representations for alternate constructions of unit 8 are shown. Notably, Figures 3, 4 and 5 show the layered construction originally presented in Figure 2, but from a different angle. The views of Figures 3, 4 and 5 are generally analogous to a view from the right hand side of Figure 2.

These views are schematic in nature and therefore do not show features that are derivable from Figure 2. In a physical embodiment of Figure 2, it is apparent from the layer construction that the distributor and collector, both designated as 9, would be adjacent to one another and that one or more walls would separate the two. If Figures 3, 4, 5 and 7 are considered to be of the same general construction as Figure 2 (note the layered tubes 6 and 7 as is done in Figure 2) the integration of the distributor and

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collector is apparent although not designated by a separating of the two. Also notable is that both refrigerant distributors and collectors are seen in these figures.

It is therefore submitted that knowing the distribution (out) and collection (back) construction of Figure 2, one of ordinary skill in the art would readily deduce that region 9 in Figures 3, 4, 5 and 7 function as distributor and collector and includes structures, such as a wall, allowing such a functioning. This being well within the purview of one of ordinary skill, the wall need not be shown in these figures and the claims are supported and enabled by the specification.

With regard to paragraph 0028, it is believed that the arguments previously presented by the undersigned has contributed to the confusion as to what paragraph 0026 and 0027 state.

Rejections Under 35 USC § 102(b) & 103(a)

Claims 1 and 4 were rejected under 35 USC §102(b) as being anticipated by or, in the alternative, under USC §103(a) as obvious over U.S. Patent No. 6,095,239 issued to Makino et al. ("Makino"). Applicant respectfully traverses these rejections.

As noted by the examiner, Makino discloses an integral-type heat exchanger having upper and lower heat exchanger tanks 25, 27 and upper and lower circular condenser tanks 31, 33 respectively mounted at *opposite* ends of a core 63. Makino, col. 1, lines 22-29, col. 5, lines 14-24, col. 6, lines 30-32, and Fig. 1. The upper condenser tank 31 and the upper heat exchanger tank 25 are attached together and mounted to an upper end of the core 63 and the lower condenser tank 33 and the lower heat exchanger tank 27 are attached together and mounted to a lower end of the core

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63. *Id.* at col. 1, lines 22-29, Fig. 1, and Figs. 24-27. From this it is submitted that Makino fails to disclose these elements being attached along one side of a heat exchanger assembly, such that both the coolant distributor region and coolant collector region, partially surround both the refrigerant distributor region and the refrigerant collector region.

Furthermore, Makino discloses a straight tube 29 formed between upper and lower insertion holes 49 and 51 respectively defined in the upper and lower tanks 27 and 27. *Id.* at col. 5, lines 44-49 and Fig. 2. Likewise, a straight tube 35 is formed between upper and lower insertion holes 53 and 55 respectively defined in the upper and lower tanks 31 and 33. *Id.* at col. 6, lines 15-20 and Fig. 2. From this it is submitted that Makino fails to disclose coolant and refrigerant tubes respectively configured to distribute coolant and refrigerant from the respective coolant and refrigerant distributor regions unit and return the coolant and refrigerant back to the respective coolant refrigerant collector regions of the unit.

For at least the above reasons, the rejection based thereon should be accordingly withdrawn.

Claim 5 was rejected under 35 USC §103(a) as being unpatentable over Makino as applied to claim 1 above, and further in view of U.S. Patent No. 3,045,979 issued to Huggins ("Huggins").

The arguments above also apply to the present rejection and are herein incorporated by reference. Makino when combined with Huggins, at least fails to disclose or suggest the features lacking in Makino, namely a unit positioned along one side of a heat exchanger assembly including both a coolant distributor region, a coolant

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collector region that partially surround, a refrigerant distributor region, and a refrigerant collector region. The combination also fails to disclose coolant and refrigerant tubes respectively configured to distribute coolant and refrigerant from the respective coolant and refrigerant distributor regions of the unit and return the coolant and refrigerant back to the respective coolant refrigerant collector regions of the manifold unit. Therefore, it must be concluded that the combination of Makino in view of Huggins cannot render the claims of the present application as obvious. The rejection under § 103 is therefore improper and should be withdrawn.

Rejections Under 35 USC § 103(a)

Claims 1, 4 and 5 were rejected under 35 USC §103(a) as being unpatentable over Makino or Makino/Huggins as applied to claims 1 and 5 above, and further in view of U.S. Patent Publication US 2001/0001982 to Khelifa ("Khelifa") or U.S. Patent 6,810,952 issued to Ben Fredj ("Ben Fredj").

The arguments above regarding Makino also apply to the present rejection and are herein incorporated by reference. Makino when combined with Khelifa or Ben Fredj, at least fails to disclose or suggest the features noted above as lacking in Makino.

In that Khelifa and Ben Fredj both fail to disclose or suggest the features which were previously noted as being absent in Makino or Makino/Huggina, it must be concluded that the above combination cannot render the claims of the present application as obvious. The rejection under § 103 is therefore improper and should be withdrawn.

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Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

Respectfully submitted,

March 7, 2006
Date

Eric J. Sosenko (Reg. No. 34,440)

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